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ABSTRACT

Research on learning styles of Mexican Americans has focused on the cognitive processes and cultural variables affecting cognitive style rather than on perceptual learning style. This study is the first attempt in the assessment of seven perceptual learning style orientations among an exclusive Mexican American population. Using the Multi-Modal Paired Associates Learning Test-II and the Perceptual Modality Preference Survey, 10 high school students and 7 university students were tested in the following perceptual modalities: (1) print; (2) aural; (3) interactive; (4) visual; (5) haptic; (6) kinesthetic, and (7) olfactory. The study determined the nature of individual differences in learning and made subjects more aware of their overall perceptual learning style, their perceptual learning style preferences, and their actual strengths. The interactive learning style was the dominant (first or second) preference of 12 of the 17 subjects; visual ranked second, print third, aural fourth, and haptic fifth. A comparison of group data with previous studies showed that the visual modality was the most prevalent actual strength. Recommendations for further research include retesting this sample in 10 years to determine changes in learning style preferences; testing a wider sample of adults; examining the effects of cultural variables on perceptual style strengths; determining if instruction through perceptual strengths improves student achievement; and testing of educators to enable them to learn more about their own perceptual learning styles. (ALL)

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Perceptual Learning Style Differences Among Mexican-American High School and University Students

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Perceptual Learning Style Differences

Among Mexican American High School and

University Students

ABSTRACT

Recent research on learning styles of Mexican Americans has focused on the cognitive processes and cultural variables affecting cognitive style. This study is the first attempt in the assessment of seven perceptual learning style orientations among an exclusive Mexican-American population.

Using the Multi-Modal Paired Associates Learning Test-II (MMPALT-II) and the Perceptual Modality Preference Survey (PMPS), ten high school students and seven university students were tested in the following perceptual modalities: print, aural, interactive, visual, haptic, kinesthetic, and olfactory.

This paper presents a review of previous perceptual learning style research, findings of the present study, and recommendations for future study.

PERCEPTUAL LEARNING STYLE DIFFERENCES
AMONG MEXICAN AMERICAN HIGH SCHOOL AND
UNIVERSITY STUDENTS

Previous Research

Recent research on learning styles of Mexican Americans has focused on the cognitive processes and cultural variables affecting cognitive style (Kagan & Buriel, 1977; Ramirez, 1982; Ramirez & Price-Williams, 1976; Saracho, 1983a). Saracho (1983b) has presented a comprehensive review of the research on the cultural differences in the cognitive style of Mexican Americans. No studies were found that have assessed perceptual learning styles of this population.

French (1975) conceptualized seven perceptual learning styles: print, aural, interactive, visual, haptic, kinesthetic, and olfactory. Perceptual learning style is the approach an individual learner uses in gathering information and knowledge through the five senses. The seven perceptual styles are defined as follows:

+ Print style is the gathering of information primarily through the written word.
+ Aural style utilizes listening.
+ Interactive style involves interaction with others.
+ Visual style involves seeing pictures images, objects and activities.
+ Haptic style involves touching, holding, and grasping.
+ Kinesthetic style involves body movement.
+ Olfactory style involves smelling and/or tasting.

Gilley (1975) developed and tested an objective system for measuring individual differences in perceptual learning style. His Multi-Modal Paired Associates Learning Test (MMPALT) was used to measure six of French's perceptual learning styles among 24 third grade students. Group data

results found the haptic and visual perceptual learning styles to be the most prevalent strengths, ranked first and second. However, all six perceptual learning styles were represented as strengths for certain individuals within the total population.

Cherry (1981) expanded the test to include a measurement of the olfactory perceptual learning style. He also developed a self-report instrument, the Perceptual Modality Preference Survey (PMPS), to determine learners' preferences among perceptual learning styles. Both insturments were used in his study of 96 heterogeneous adults. Results of the MMPALT group data ranked the visual style first and the haptic style second as learner strengths. All seven learning styles were represented as actual strengths among individuals. PMPS group data ranked the kinesthetic, visual and interactive styles as the top preferences.

Schaiper (1983) used the PMPS (to measure preferences), the MMPALT-II (to measure actual strengths), and added the Perceptual Style Interview (PSI) to determine learners' viewpoints of how their perceptual strengths were actually used. His study included 53 Western Carolina University students in various human service training programs. Results of the MMPALT-II group data ranked visual, print, and interactive styles as the top three strengths. All seven perceptual styles were represented among individuals. Group PMPS data ranked interactive and kinesthetic as the overwhelming preferences. French, Cherry, Gilley, and Schaiper all recommended the need to further test a wider range of populations.

Purpose of the Study

The present study had three major purposes. These were: 1) to replicate the Cherry and Schaiper studies with Mexican-American high school and university student populations. Further validation of the Gilley-Cherry

perceptual style measurement system was obtained. 2) A second purpose was to compare the perceptual learning styles of high school Mexican American students with those of university students; and 3) to compare the findings of this study with those of Schaiper and Cherry.

Significance of the Study

This study is the first attempt in the assessment of seven perceptual learning style orientations among an exclusive Mexican American population. It helps determine the nature of individual differences in learning. The subjects became more self-aware concerning their overall perceptual learning style, their perceptual learning style preferences, and actual strengths. The study also offers a comparison between the perceptual learning styles of high school students and university students.

Procedures

This study included ten high school students and seven university students. The students self-selected to participate in the study based upon their own desire to do so. Participation in the study was not connected to course grades or course requirements of any kind. Verbal invitations were extended and follow-up phone calls were made to select specific times for the actual research to take place. A large group meeting was held with a group of high school students to invite them and explain the nature of the study. The study was conducted during the Spring Semester 1985 on the campus of Eastern New Mexico University.

Instrumentation

Each subject received two measurements of his or her perceptual learning style. The two instruments used in this study were: 1) The Multi-Modal Paired Associates Learning Test-II (MMPALT-II) and 2) the Perceptual Modality Preference Survey (PMPS).<

MMPALT-II. This instrument identifies the relative strengths and weaknesses of the subject in each of the seven elements of perceptual style: print, aural, interactive, visual, haptic, kinesthetic, and olfactory. The test consists of ten pairs of stimulus and response items for each element. The subject is presented with all ten pairs of stimulus and response members in a particular element. He or she is then presented with only the stimulus member of each associated pair in a different order from that used in the initial presentation, and asked to recall the correct response member. The test is scored on the basis of number of correct responses. The seven scores (one for each element tested) for each subject are arranged from high to low to produce a strongest to weakest rank ordering of the subject's perceptual learning style. Those elements ranked first and second are the individual subject's perceptual learning style strengths. The development of this test represents the combined efforts of Cherry, Gilley, French, Schaiper, and Flores.

Perceptual Modality Preferency Survey (PMPS). Cherry developed this test to ascertain each subject's intuitive opinion about his or her own strengths and weaknesses in each of the seven perceptual learning styles. Schaiper further refined this instrument. This forced choice questionnaire contains 42 response items. Each perceptual style element is contrasted with each of the other style elements twice and in reverse order. A subject responds to each statement by choosing one of four alternatives: Always, Usually, Seldom, or Never. To counteract any conflicting responses and evaluate both style elements in each statement, responses are scored with positive (accepting the statement) and negative (rejecting the statement) numerical values. The scores for the various style elements are then arranged from high to low to produce a rank ordering of the subject's subjective assessment of his or her

own perceptual style. Those items ranked first and second are the subject's dominant preferences.

Methodology

The assessment process included three phases. Subjects were first given an explanation of the seven perceptual styles and an example of how each of the seven styles would be tested. Subjects then completed the PMPS. The visual, aural, and print parts of the MMPALT-II were given in a group testing situation. Subjects individually completed the kinesthetic, haptic, olfactory, and interactive parts of the MMPALT-II individually at four separate stations. Upon completion of all seven parts of the MMPALT-II, subjects returned to the original station for a ten minute discussion.

Findings

1. PMPS. Six of the seven perceptual learning styles were identified as dominant preferences (ranked first or second). For the total group (17) interactive was ranked first and visual second.

TABLE I

PMPS Summary of Dominant Perceptual Learning Style Preferences (N=17)

1. Interactive (12)
2. Visual (8)
3. Print (6)
4. Aural (5)
5. Kinesthetic (4)
6. Haptic (3)
7. Olfactory (0)

2. MMPALT-II. Sixty-four percent of the scoring range was used in the MMPALT-II.

3. MMPALT-II. Four of the seven perceptual learning styles were actual learning strengths of individual subjects; that is, ranked first or second. They include: Visual (15), Print (11), Aural (7), Interactive (7).

4. MMPALT-II. Group data indicate that visual was ranked first by Mexican American high school students. Aural was ranked second. (N=10).

5. MMPALT-II. Group data indicate that interactive was ranked first by university students. Visual was ranked second. (N=7).

6. MMPALT-II. Group data for the total group indicates that Visual was ranked first. Aural ranked second. (N=17).

TABLE II

Rank Order Group Data MMPALT-II Test of Mexican American Students (March 1985)

High School Students N=10	University Students N=7	Total Group N=17
1. Visual	1. Interactive	1. Visual
2. Aural	2. Visual	2. Aural
3. Print	3. Print	3. Print
	4. and (Tie) Aural	
4. Interactive		4. Interactive
5. Haptic	5. Haptic	5. Haptic
6. Kinesthetic	6. Kinesthetic	6. Kinesthetic
7. Olfactory	7. Olfactory	7. Olfactory

7. Comparison of PMPS and MMPALT-II Data. All seven university students identified one preference that was an actual strength. Three of the seven identified two preferences that were actual strengths. Five of the ten high school students identified one preference that was an actual strength. Three

of the ten high school students identified two preferences that were actual strengths.

8. Comparison Between This Study and the Cherry and Schaiper Studies. Group data from all three studies ranked visual first as the actual strength according to MMPALT-II data.

TABLE III

MMPALT-II Rank Order of Group Data of Three Studies

Schaiper (1983) N=53	Cherry (1981) N=96	Schaiper-Flores (1985) N=17
Visual	Visual	Visual
Print	Haptic	Aural
Interactive	Aural	Print
Aural	Interactive	Interactive
Haptic	Print	Haptic
Kinesthetic	Kinesthetic	Kinesthetic
Olfactory	Olfactory	Olfactory

Conclusions

1. Individuals differ in terms of their perceptual learning style. A wide range of individual scores and wide array of actual strengths were present even though the sample size of 17 was small.

2. Individuals differ in terms of their learning style preferences.

3. University students were much more interactive than the high school students.

4. University students were much more self-aware than the high school students. The university students' preferences matched their actual strengths more frequently than the high school students.

5. Females were more interactive than males.

6. Males were more visual than females.

7. Based on a comparison of group MMPALT-II data between this study and the Schaiper and Cherry studies the visual modality is the most prevalent strength. University students in this study and Schaiper's study tend to be stronger in the interactive modality when compared to Cherry's heterogeneous adults and this study's high school students. This study's high school students and Cherry's adults tend to be stronger in the aural modality than were the university student counterparts in this study and Schaiper's. (See Tables II and II).

1. Educators should provide instruction in a wide array of perceptual modalities.

2. New information and critical information should be presented through a learner's perceptual strengths.

3. Perceptual strengths should be developed.

4. Learner preferences should be paired with perceptual strengths.

5. Perceptual weak areas should be developed, but only after a learner's actual strength has been identified and developed.

6. Educators should be tested to determine their own perceptual style preferences, strengths, and weaknesses.

7. Educators should determine how their perceptual learning style effects their teaching style.

8. Educators should be grouped together according to their perceptual strengths to develop curricula and instructional materials.

Recommendations For Future Research

1. Further research with adult Mexican Americans should include a much larger sample of a wider array of adults. The more heterogeneous the population the wider the spectrum of perceptual learning styles that will be represented.

2. Further research with children and young adults should include a larger sample size involving exceptional children, high risk students, and younger children.

3. The subjects in this study should be tested again every ten years to determine if perceptual strengths are developmental.

4. Research should be conducted to examine the effects of cultural variables on pereptual style strengths.

5. Research should be conducted to examine the relationship between the interactive perceptual style and Ramirez and Castaneda's field sensitive cognitive style.

6. Research should be done to determine what forms of information presentation (in the various perceptual styles) improve the efficiency and quality of learning.

7. Attempts should be made to identify effective combinations of perceptual modalities in individual learners. Perhaps learning is improved when combinations of perceptual modalities function simultaneously.

8. Research should be conducted to determine if instruction through perceptual strengths improves student achievement.

9. Educators should be tested to enable them to learn more about their own perceptual learning styles. As teachers become more aware of their own individual differences they might be more willing to flex their teaching style and implement individualized instruction more seriously.

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